Office of Erie County Legislator

Patrick B. Burke

Municipal Broadband Project

Creating a roadmap to encourage economic development and expand high-speed internet access for all residents in Erie County.

Committee Members

Legislator Patrick Burke – Co-Chair – Erie County Legislator, 7th District

Ryan Slomiany – Co-Chair – IT Professional

Martha Buyer – Telecommunications Attorney

Diana Cihak – President, Upper Edge Consulting

John Kennedy– Staff for Erie County Legislature Minority Caucus

Eric Tower– Staff for Erie County Legislator Patrick Burke

EXECUTIVE SUMMARY

Evidence provided in this report indicates that Erie County could directly benefit from the creation of a regional municipal broadband network, anticipating the average 1.1% growth in GDP (roughly $450 million in Erie County) from the creation of the network, as compared to other communities of its size. In addition, the creation of a regional municipal broadband network would have many indirect benefits to the economy including faster job growth, faster business growth, and increased property values.

The creation of a regional municipal broadband network was identified as a need by Erie County Legislator Patrick B. Burke whose resolution regarding the need to study the possibility of a Municipal Broadband Network was passed unanimously by the Economic Development Committee in 2014. Subsequently, the Municipal Broadband Committee was formed to identify the possibilities for, and potential value offered by, the creation of a regional municipal network. From the outset, the committee identified several communities and geographies which are underserved by existing market-based broadband internet providers. Product packages offered by existing market-based providers underserve people in rural, economically disadvantaged, and geographically unprofitable communities called "dead zones" (areas where market-based providers will not expand due to a lack of desired return on investment). In all of these cases the service gaps in affordability, access, and speed are created by market price inefficiencies caused by low competition between market-based providers, and have left the economic and educational future of a significant portion of our region swinging in the balance.

The regulatory and political environment for a municipal broadband network has shifted with recent policy changes being affected by President Obama and the FCC on a federal level, and supportive policies recently announced by Governor Cuomo in New York State. The Municipal Broadband Committee believes that our region is well positioned to explore the possibility of a Municipal Broadband Network at this time. Through a combination of federal, state, regional programs and regional partners, the committee believes our County could enjoy the successes created by such municipal broadband networks as the one in Wilson, North Carolina.Wilson's own broadband service was paid for strictly through municipal bonds, provides 1 gigabit service to the community, and was operating with positive revenue within its first 3 years of operation.

A municipal broadband network could be a vital asset to the economic growth of this region, by improving connectivity speeds between ourselves and other major metropolitan regions like Toronto and New York City, and increasing potential opportunities for businesses like data centers and technology startups that could flourish in our relatively lower cost region. In addition, such a network could resolve market inefficiencies by providing needed competition and access to "dead zones" ignored by market-based providers in our region. Providing this affordable high-speed access through direct connections or open community Wi-Fi, could lower costs to families with children, as well as educational institutions in our region, and would serve to close the technology gaps that plague the educational system, leaving so many stuck in the cycle of poverty.

The Municipal Broadband Committee is seeking funding to commission an RFP to fully explore the scope and possibilities of its findings as it would apply to Erie County. This exploration of scope would include the identification and mapping of existing 'dark fiber' infrastructure, the investigation of potential service providing models, and recommendations of key private-public and public-public partnerships that could be established between the County and other regional and state institutions.

UNIVERSAL SERVICE AND ACCESS ARE THE GOALS

One of the primary goals of the Telecommunications Act of 1996 and follow-on rulemakings has been to provide "advanced telecommunications service" to every American. As telecommunications technology has evolved away from a strictly phone-based environment, the needs of those who live in rural or other sparsely populated areas have evolved too, and the need for high speed broadband has become increasingly acute.

In the past, federal agencies, and some states and municipalities have supported efforts with market-based providers to expand access, but if true universal service and access is to be achieved, then competing public and private interests must develop solutions to ensure service to those who need it. When deliveringaffordable high-speed access becomes unprofitable to market-based providers, it is the role of government to fill the gap to achieve universal service and access.

MARKET-BASED PROVIDER PREEMPTION

Much of the current regulatory conflict involves state and municipal challenges to Section 706 of the Telecommunications Act of 1996 (Pub. L. No. 104-104, § 706(a), 110 Stat. 56, 153). When similar challenges have been brought in other communities throughout the country, they've often been mounted by localities that seek to implement their own municipal broadband networks, but have been thwarted because of the existence of state laws, heavily supported by the lobbying efforts of market-based providers both pre- and post-legislation, that preclude such action.

The relevant passage of the Telecom Act reads:

> *The Commission and each State commission with regulatory jurisdiction over telecommunications services shall encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms) by utilizing, in a manner consistent with the public interest, convenience, and necessity, price cap regulation, regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.*

In July of 2014, the Electric Power Board of Chattanooga, Tennessee and the City of Wilson, North Carolina petitioned the FCC to preempt existing state laws that each community sees as restricting its abilities to use state and/or municipal funds to build out broadband. The moves by these municipalities (like Chattanooga, TN; Mobile, AL; Fargo, ND, and others) are opening doors to others looking for affordable, high-speed solutions to the current market place.

All of this is further bouyed by the recent ruling by the FCC that signals the start of a new phase of regulation that will begin to treat broadband internet providers as a utility.

UNDERSERVED COMMUNITIES AND GEOGRAPHIES

Existing market-based providers in Erie County have little incentive to extend high-speed service to either rural or lower-income communities, because building out those areas for high-speed connections would not give the return they are looking to achieve.

As seen on the map in Appendix 1, only the areas north and south of the urban core of Erie County have been built out for peak speeds up to 50MBPS. However, the average speed achieved in the Buffalo Metropolitan Area is only 22.2MBPS, placing us 294th for municipalities in New York State.[1] The geography of underserved areas is further expanded by the "Dead Zone" map in Appendix 2 which show the vast areas of the southern-tier where no internet access is available at all.

Current service offerings of market-based providers in Erie County lag behind the rest of the state, the rest of the Country and the rest of the world in both bandwidth offerings and cost. Current national trends show bandwidth growth increasing at a rate of roughly 50% per year. However, in our region market-based providers are not keeping pace with that trend.[2]The creation of alternative forms of provision in the market could raise the baseline and offer needed pressure to force innovation on the part of these providers.[3]

[1] As measured by OOKLA, http://www.netindex.com/download/3,48/New-York/

[2] http://www.broadbandproperties.com/2007issues/may07issues/exabyte_may.pdf

[3] http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2013-14.pdf

SHIFTS IN POLICY

Recent events in the start of 2015 have given new life to the idea of Municipal Broadband Services across the United States, but more importantly in New York State.

BroadbandUSA[4]

President Obama has recently announced an ambitious effort to increase speeds and lower cost-of-access for all Americans. Details of the plan are being slowly released. From the White House Fact Sheet on Broadband Initiatives published on January 13, 2015

New Initiative to Support Community Broadband: Building on expertise gained from overseeing the $4.7 billion Broadband Technology Opportunities Program funded through the Recovery Act, BroadbandUSA will offer online and in-person technical assistance to communities; host a series of regional workshops around the country; and publish guides and tools that provide communities with proven solutions to address problems in broadband infrastructure planning, financing, construction, and operations across many types of business models.

New Grant and Loan Opportunities for Rural Providers: The Department of Agriculture is accepting applications to its Community Connect broadband grant program and will reopen a revamped broadband loan program, which offers financing to eligible rural carriers that invest in bringing high-speed broadband to un-served and under-served rural areas.

Removing Regulatory Barriers and Improving Investment Incentives: The President is calling for the Federal Government to remove all unnecessary regulatory and policy barriers to broadband build-out and competition, and is establishing a new Broadband Opportunity Council of over a dozen government agencies with the singular goal of speeding up broadband deployment and promoting adoption for our citizens. The Council will also solicit public comment on unnecessary regulatory barriers and opportunities to promote greater coordination with the aim of addressing those within its scope.

Broadband Resources in New York State[5]

The Governor has announced a new initiative to be included in his proposed budget that would offer $500 million in state funds to be matched with private funds for a total of $1 Billion. Funds would be used to provide broadband with speeds of at least 100Mbps, and would require a private commitment in a 1 to 1 or greater match. Funds will be competitive, but no further details are yet available. It appears the funds will be allocated through the REDC process.

With the continued growth of Erie County as a region, and the ongoing investment by New York State through the Buffalo Billion, now would be the perfect time to future-proof the regions telecommunications infrastructure.

Past New York State Programs

Investments in Telecommunications infrastructure is not a new idea in New York State. The New York State Broadband Program Office lists two funding streams for broadband with allocations made over the last four years.

The first funding stream was $25 million in Connect NY funds. Allocations were made throughout the State and concentrated on rural and underserved areas. WNY has received only one allocation, $800,000 to Alleghany County, and was included as part of a group in a second allocation that funded TWC to provide broadband to over 4,000 homes.

The second funding source from the State has been allocated during four rounds of Regional Economic Development Council (REDC). $43 million was allocated in rounds 1-3 with an additional $2.9 million given to Delaware and Schoharie Counties in round 4.

Local Policy

The shifts in policy that are occurring on the Federal and State levels will also have to occur on the local levels. Municipal Broadband friendly policy will create the foundation for the expansion and viability of the proposed fiber network in the municipal franchise area.

Initially, a local government will have to take steps to ensure incumbent market-based providers have no recourse to halt the build out of the fiber network or prevent sale of consumer services.

Currently, the City of Buffalo has a “non-exclusive” clause contained within its franchise agreement with Time Warner Cable. This should mean a fairly clear path for fiber deployment and sales within the city.

Officials in other cities, towns, and villages within the region will need to ensure non-exclusivity within their respective franchise agreements and during negotiations. County and local governments can also implement a “dig once” policy, which would require installation oftelecom conduit or fiber whenever a trench or road is open or

[4] http://www.whitehouse.gov/the-press-office/2015/01/13/fact-sheet-broadband-works-promoting-competition-local-choice-next-gener

[5] http://www.nysbroadband.ny.gov/sites/default/files/documents/ToolkitFINAL_6-4-14.pdf

during the development of new and existing structures.

A basic summary of additional funding opportunities has been included in Appendix 4.

MUNICIPAL BROADBAND SUCCESSES

In recent years, the communities who have taken it upon themselves to implement state-of-the-art fiber networks as a faster, cheaper alternative to market-based service companies have seen many successes. With internet bandwidth usage rising at a rate of approximately 50% per year, consumers are finding the high-speed internet offerings from such providers insufficient.

Cities like Chattanooga, TN; Wilson, NC; and Bristol, VA have led the way in providing 1 gigabit-per-second internet service to their residents, a speed that is over 30 times the national average. For instance, a Chattanooga resident could download a standard sized MP3 in 6 seconds compared to 3 minutes for the average US internet user. The notoriety of being a community with 1 gigabit speed has been an attractor for business in the Chattanooga, TN area with major manufactures like Volkswagen identifying their Municipal Network as being a deciding point in their move to the area.[6]

REGIONAL ASSET FOR ECONOMIC DEVELOPMENT

A reliable, fast, secure, versatile fiber infrastructure provides many economic benefits. Doctors connecting from a remote office to hospitals can review patient files and images promptly and more securely. Schools and libraries are able to provide audio, video and other educational content remotely when they otherwise couldn't. Emergency service providers and first responders are able to quickly and easily communicate and share information. Traffic systems and power grids can adjust in real-time to operate more efficiently and to account for emergencies. Wireless access points can be installed in public spaces for the convenience of the public. These are just a few of the capabilities a municipal fiber network can provide to the economy.

Direct and Indirect Benefits to GDP

An increasing number of studies done on Metropolitan areas that have implemented gigabit speed broadband networks in their regions have all shown positive effects on GDP both directly and indirectly. One study that compared 14 Metropolitan regions in 9 states, against a control group of 41 similarly sized regions showed that on average the GDP of the region grows an additional 1.1% due to the creation of a regional gigabit broadband network.

This increase in GDP is caused by both direct effects of creating the network and customers purchasing internet service, and also from indirect economic effects. Regions cited in the study showed indirect effects of faster job growth, faster business firm growth, and higher realized market rates for rent (a proxy for real estate property values).[7]

Competition is Good for the Consumer

The lack of competition between market-based service providers results in a substandard level of service or no broadband service whatsoever for some residents and businesses. Implementing a municipal fiber network would catalyze the competitive ecosystem necessary to increase the level of service and expand that service to areas throughout the region.

Upon completion of an RFP, the best model will be chosen to create this necessary competitive environment. The network and services may be wholly publicly owned or be a public-private partnership. Municipalities have experienced success with each of these models. The most appropriate model for this region would require the detailed analysis of the RFP.

Competition is Good for Economic Growth

As our local economy continues to grow, it's important we plan for the future and provide businesses with world-class, cost-effective fiber connectivity. Cities that have provided 1 gigabit per second internet speeds (or faster) have gained notoriety for being forward-looking and tech friendly by startups and companies looking to relocate.

Businesses in these areas are lauding the increased level of service at a fraction of the cost of established market-based service providers. Installing an advanced fiber network now, while working with developers to ensure new builds and renovations are wired, will create the competitive ecosystem necessary to provide our region with opportunities to innovate on many fronts:

- Utilities and Municipalities could benefit from communications enhancements in the utility grid. Smart grid technology, increases coordination in traffic, utility and emergency services systems.
- Connecting Municipal buildings, Libraries, hospitals, schools, community centers, and other public facilities can realize a net cost savings for government across the board, as a market-based provider plans for intuitions are quite costly.
- Both large and small businesses benefit from cost drops in service contracts.[8]

[6] http://www.cga.ct.gov/2012/rpt/2012-R-0515.htm

[7] www.ftthcouncil.org/d/do/1686

[8] http://www.ilsr.org/wp-content/uploads/2014/03/santa-monica-city-net-fiber-2014-2.pdf

- Municipal Broadband is a way to ensure Network Neutrality and Privacy rights for not only citizens, but also for businesses that rely on it for sales.
- Extending the network to the public via Open Community Wi-Fi can save the County money for offsite government workers.
- Extending the network with Wi-Fi can also grant access to affordable high-speed options to low-income neighborhoods and housing projects.
- Affordable high-speed fiber also improves service to companies around the United States with telecommuting workers, making it easier for people in our region to work for them.
- A high-speed low-latency network structure would also benefit the financial sector by allowing Buffalo to become an electronic trading hub between New York City and Chicago.

GOING FORWARD

An RFP is the First Step

As discussed, a community based fiber network provides many benefits to the residents, businesses and government service providers of a region. That being said, every community has varying needs for an advanced fiber network and different implementation choices from which to choose. It's important to plan extensively for a financially viable future-proof network that will deliver world-class service for decades.

The first and arguably most important step in this process is completing an RFP for the initiative. Once chosen after a competitive bid process, a consultant will compose the feasibility study as a framework for future milestones, such as network related policy, resource maps, legal issues, a business case, funding and design.

Identifying Existing Infrastructure

One of the major points of having the RFP completed will be to gather a complete understanding of the infrastructure that is already in place. Experts on the Municipal Broadband Committee have identified a large amount of 'dark fiber' in our region, that is, fiber that is already in place, but not in use. Identifying the owners of this dark fiber, and understanding the ways in which it can be brought to life is a key component to the RFP. As it would determine how much of the available infrastructure and resources were already in place and obtainable. This would reduce implementation costs, disruption due to installation and time taken to complete stages of the initiative.

Bringing the untapped supply in our region to the consumer market will greatly enhance the competitive offerings of existing market-based providers. Again experts with the committee believe that the existing dark fiber could easily upgrade current service offerings to well over the 1-gigabit speed achieved in other municipal broadband networks.

A Smart, Efficient Approach

An in-depth RFP will recommend the most economically viable business plan for network creation. The majority of fiber-connected municipalities have installed the necessary infrastructure in waves of a given period of time. High impact, income producing projects—like connecting government buildings and schools, or selling cellular tower bandwidth to mobile providers—generally come first.

The Highway System of the 21st Century

The RFP process would more accurately investigate if a fully public or a hybrid, public-private model may provide the most flexibility regarding funding, construction and maintenance.

The government must ensure the network meets policy objectives and suitably benefits the public (think shared space, schools, services, etc.). Includinga private element in a hybrid model could be the consumer facing portion that would directly compete with incumbent telecommunications providers.

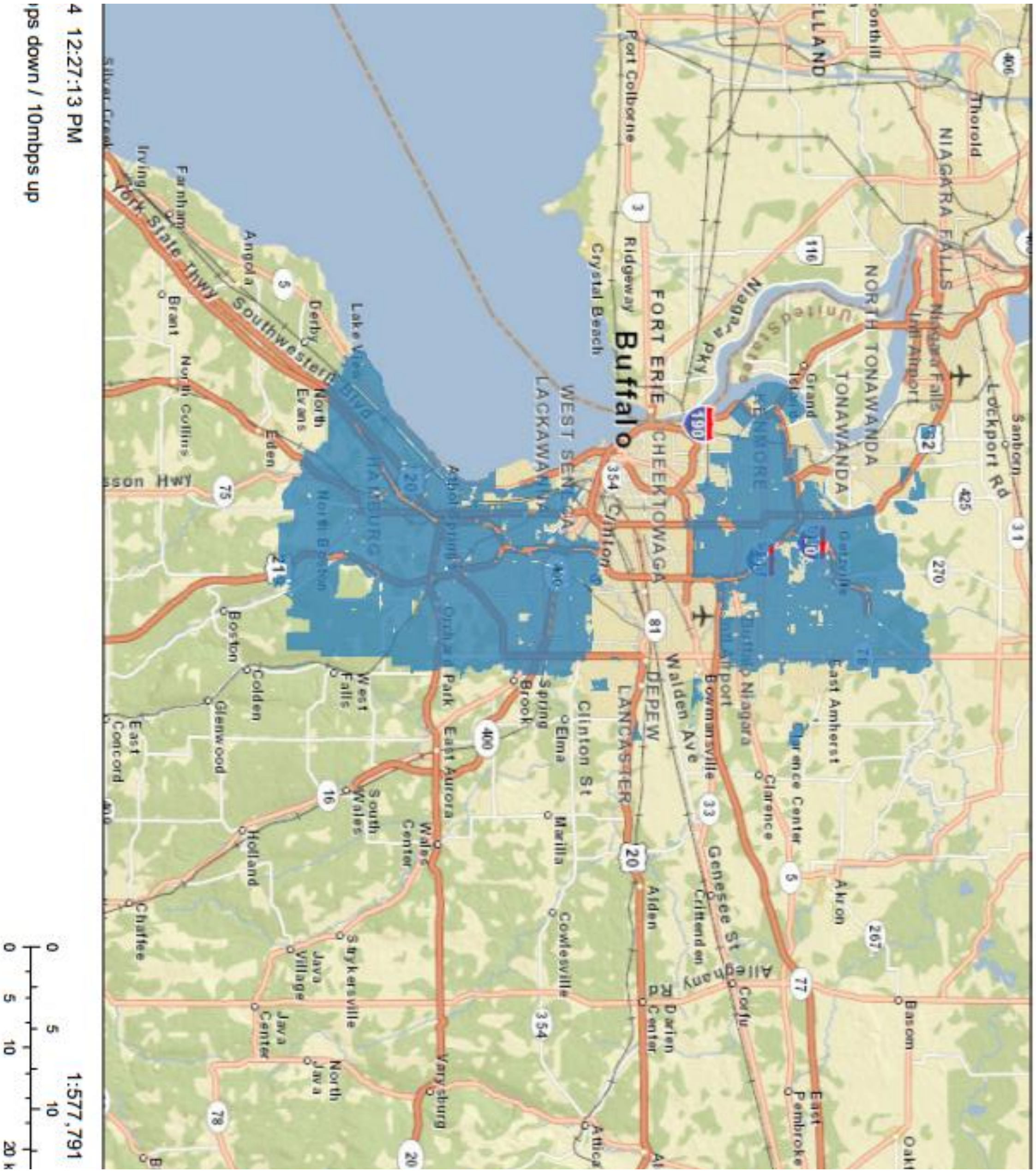
Each entity would be responsible for upkeep and upgrades, while sharing profits from service fees and lease fees. Additionally, with an open access model, the government would own the infrastructure while many service providers utilize the network to compete for customers; much like roads and highways enable fast and easy transportation for the good of the economy.

Building Local Partnerships and Community Buy-in

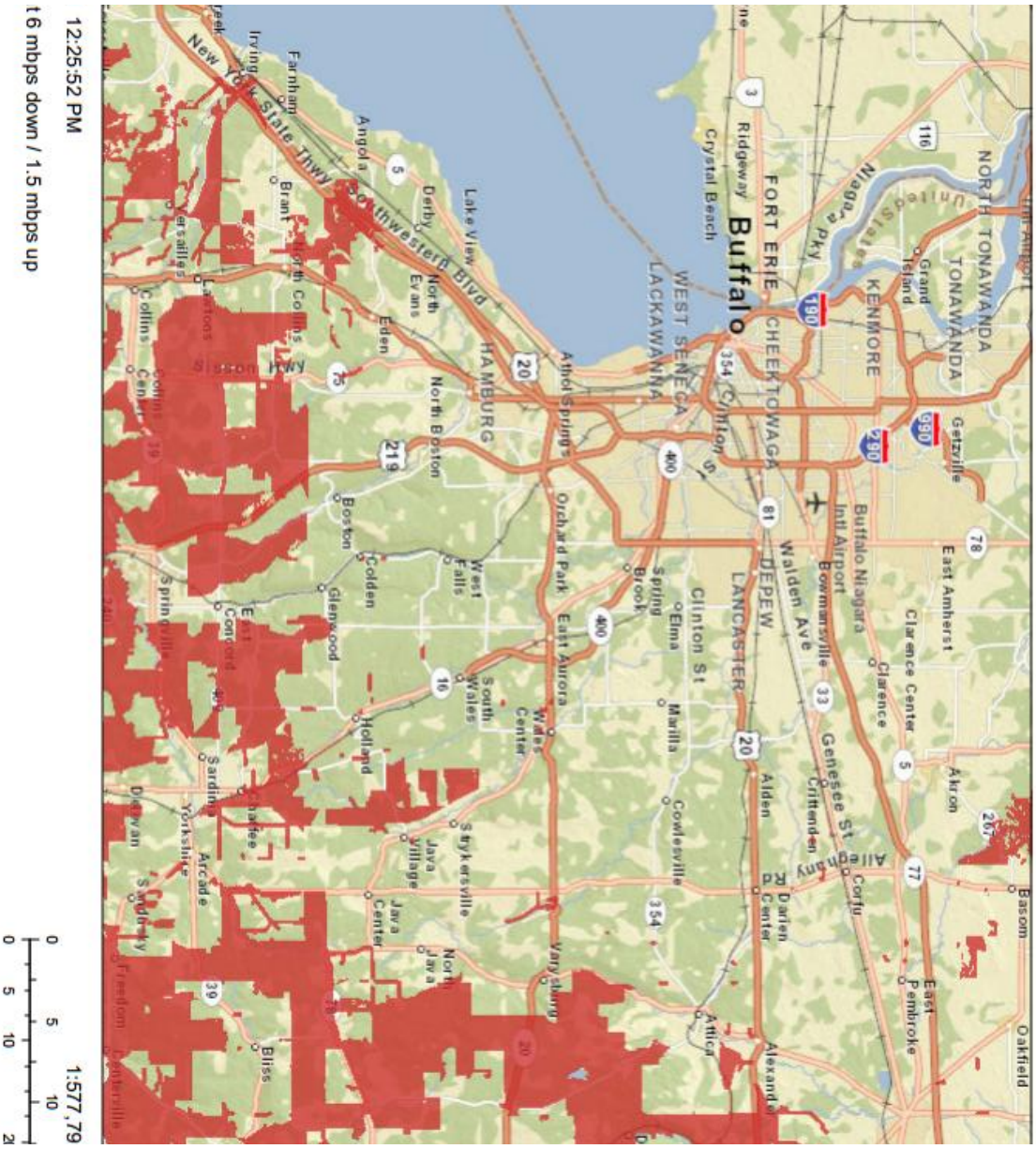
In tandem with performing an RFP study, it's recommended Erie County engage and partner with the public, local governments, businesses, utility providers and other local organizations early in the planning process.

Potential partners could include companies and incubators in the tech sector, Time Warner Cable, Verizon, the City of Buffalo, other cities, towns and villages, local educational institutions (such as Erie 1 BOCES , University at Buffalo, Buffalo State, SUNY), National Grid, medical facilities, The Riverbed Project, One Region Forward, and others.

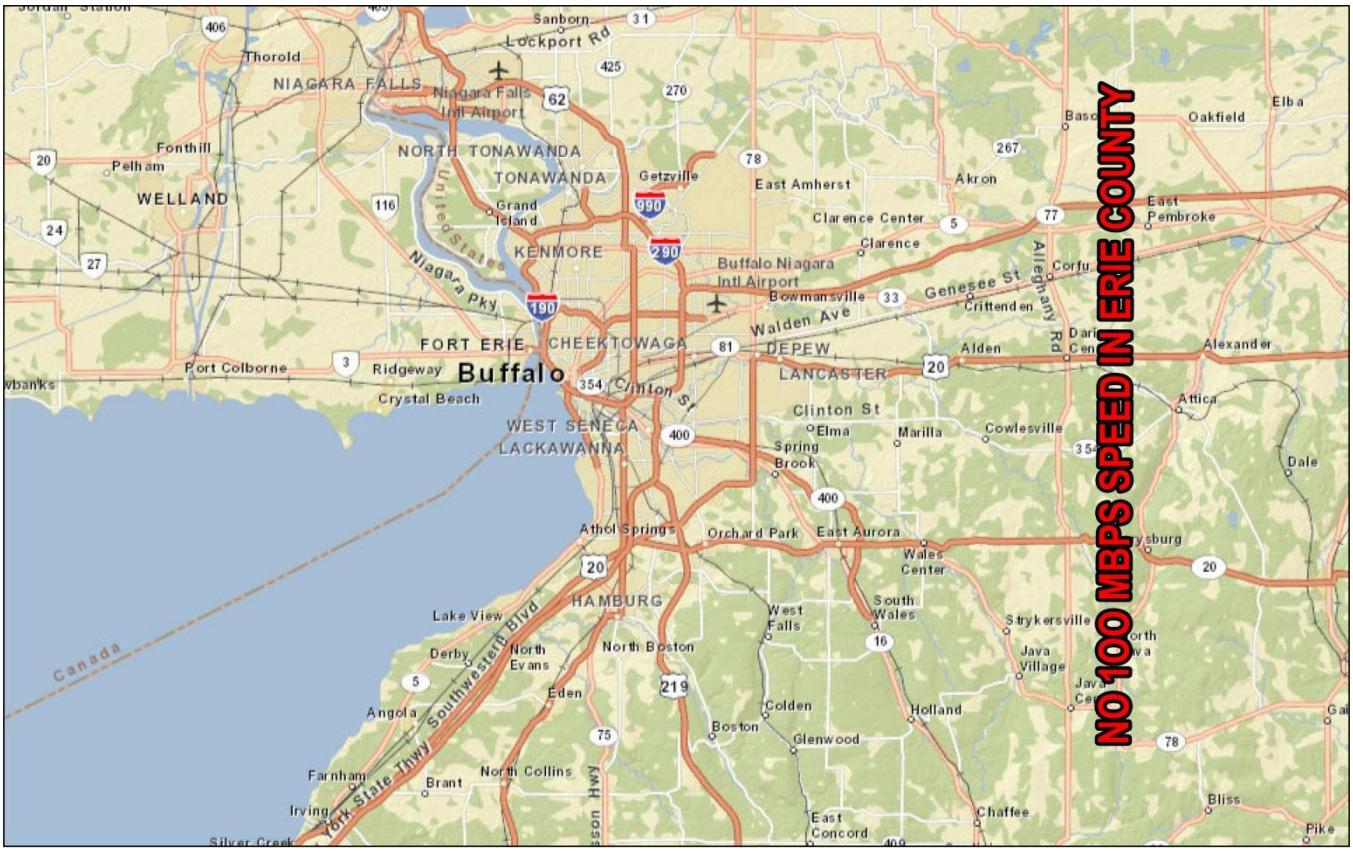
APPENDIX 1 – MAP OF AREAS COVERED WITH SPEEDS OF 50MBPS



APPENDIX 2- MAP OF AREAS WITH NO SERVICE TO 6MBPS



APPENDIX 3- MAP OF AREAS WITH NO 100 MBPS



APPENDIX 4
ADDITIONAL FUNDING OPPORTUNITIES

Currently, federal agencies and programs, including the Rural Utilities Service (RUS), which operate under the umbrella of the U.S. Department of Agriculture, and the NTIA Broadband Technology Opportunities Program (BTOP), under the U.S. Department of Commerce have made significant investments to support rural and hard-to-serve areas. As an example, since 2009, RUS has invested $382 million in building North Dakota's broadband infrastructure.

Federal Funding Opportunities for Rural Broadband

New York State has been working with the federal government including the Federal Communications Commission (FCC), the Rural Utilities Services (RUS) and the United States Department of Agriculture (USDA) in an effort to streamline the application process to apply for and expedite the delivery of available federal funds.

Programs listed below from the Federal Government are all targeted at rural areas. Some parts of the County may be eligible for this funding, but likely this would not apply for County-wide applications.

USDA RURAL UTILITIES SERVICE (RUS)

USDA Grants:
http://www.rurdev.usda.gov/RD_Grants.html

USDA Loans:
http://www.rurdev.usda.gov/RD_Loans.html

The Community-Oriented Connectivity Broadband Grant ("Community Connect") Program

The Community Connect Program provides grants to eligible applicants to establish service in rural areas where no broadband service exists today. The grants will provide funding to support broadband deployment that fosters economic growth and delivers enhanced educational, health care, and public safety benefits. To obtain an application visit http://www.rurdev.usda.gov/utp_commconnect.html.

Grant Program Features: Grant applications are accepted annually through a competitive process. The open season for applications is announced each year, usually in the spring, through a Notice of Funds Availability (NOFA) in the Federal Register. Minimum and maximum grant award amounts are specified in the NOFA. To obtain an application or for more information visit: http://www.rurdev.0usda.gov/utp_commconnect.html.

The Distance Learning and Telemedicine (DLT) Program

The DLT provides both educational and healthcare opportunities in rural communities through grants that finance advanced telecommunications technologies. The focus is on using the unique capabilities of telecommunications to connect rural areas to each other and to the world, thus overcoming the effects of remoteness and low population density. DLT, which began in 1993, has funded more than 1,400 projects totaling $512 million.

DLT Grant Program Features: DLT grant applications are accepted annually through a competitive process. The open season for applications is announced through a Notice of Funding Availability (NOFA) in the Federal Register. Applicants are required to provide a minimum of 15 percent in matching funds. Once announced, the NOFA and an application guide are posted on the program Web site. For more information visit: http://www.rurdev.usda.gov/UTP_DLT.html.

Rural Broadband Loan

This program funds the costs of construction, improvement, and acquisition of facilities and equipment to provide broadband service to eligible rural areas on a technology-neutral basis. Direct loans are in the form of a cost-of-money loan, a 4-percent loan, or a combination of the two. In March 2011, Rural Development published an interim rule in the Federal Register proposing changes required due to program modifications under the 2008 Farm Bill. The interim rule can be found online at: www.rurdev.usda.gov/utp_farmbill.html.

Eligible Rural Areas: Rural area means any area, as confirmed by the latest decennial census by the U.S. Census Bureau, which is not located within: (a) A city, town, or incorporated area that has a population of more than 20,000 people; or (b) An urbanized area contiguous and adjacent to a city or town with a population of more than 50,000 people. An urbanized area means a densely populated territory as defined in the latest decennial census.

Telecommunications Loan Program

The Telecommunications Loan Program improves the quality of life in rural America by providing investment capital, in the form of loans, for the deployment of rural telecommunications infrastructure.

The USDA Rural Development's Utilities Programs finances infrastructure that enables access to a seamless, nationwide telecommunications network. With access to the same advanced telecommunications networks of its

urban counterparts, especially broadband networks designed to accommodate distance learning, telework and telemedicine, rural America will see improved educational opportunities, health care, safety and security and ultimately, higher employment. Through this pro- gram, more than $13 billion has been invested in improved telecommunications services to rural subscribers.

Eligibility Requirements: Financial assistance is provided to: Rural utilities; municipalities; commercial corporations; limited liability companies; public utility districts; Indian tribes; and cooperative, non-profit, limited-dividend, or mutual associations. To obtain an application packet or for more information, visit http://www.usda.gov/rus/telecom/.

APPENDIX 5: LINKS & ARTICLES

FCC Classifying Internet as a Public Utility:

http://www.npr.org/2015/02/05/383988604/fcc-chairman-proposes-classifying-the-internet-as-a-public-utility

Cuomo Proposes $1 billion to Provide High Speed Broadband to Every New Yorker:

http://auburnpub.com/blogs/eye_on_ny/cuomo-proposes-billion-investment-to-provide-high-speed-broadband-to/article_e11d6a42-9d99-11e4-b9ab-17855a1d8dc1.html

Obama Calls for More Internet Options for Consumers:

http://www.nytimes.com/2015/01/21/upshot/obama-calls-for-more-internet-service-options-for-consumers.html?_r=0

Erie County Exploring the Idea of Municipal Broadband

http://news.wbfo.org/post/erie-county-exploring-idea-municipal-broadband

Cisco Inc. to Invest $4 Billion in Ontario, Could Create 1700 Tech Jobs

http://www.theglobeandmail.com/report-on-business/economy/cisco-to-invest-4-billion-in-ontario-create-1700-jobs/article15944886/